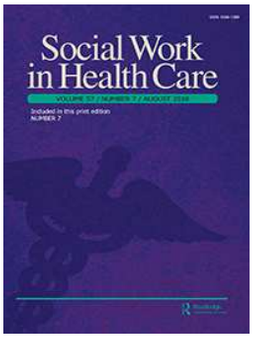

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Do transgender men have equal access to health care and engagement in preventive health behaviors compared to cisgender adults?

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ABSTRACT
Using 2015 Behavioral Risk Factor Surveillance System data, this study investigates whether transgender men have equal access to health care and engagement in preventive health behaviors compared to cisgender adults in the U.S. and whether race/ethnicity, socioeconomic status, and rural residence moderate these relationships. Once controlling for sociodemographic factors, we do not find differences for transgender men. Rural transgender men were less likely to have a personal doctor or receive a blood cholesterol screening than their urban peers; transgender men with less education were more likely to have a cholesterol screening. We detail implications for social workers within health care.

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FTM; health-care access; preventive health; rural; transgender men

Best estimates suggest that approximately 0.6% of the U.S. adult population, or about 1.4 million adults, identifies as transgender (Flores, Herman, Gates, & Brown, 2016). Although a burgeoning body of research has documented the barriers to adequate health care as well as health disparities faced by transgender individuals, little empirical research has specifically studied transgender men—those who were assigned a female sex at birth and currently identify as men (MacCarthy, Reisner, Nunn, Perez-Brumer, & Operatrio, 2015). Responding to the call for more population-specific studies on transgender health (Institute of Medicine, 2011), this study aims to examine whether access to health care and engagement in preventive health behaviors differ for transgender men (also known as female-to-male (FTM)) individuals compared to cisgender (non-transgender) adults. Our hope is that comparing transgender men's health-care access and preventive health behaviors to cisgender adults will help social workers and other health-care providers understand the unique barriers faced by transgender men that can impact their health disparities. Before detailing this study, we will first provide an overview of a relevant conceptual framework (the minority stress

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model) and review the literature related to transgender men's health, barriers to health-care access, and engagement in preventive health behaviors.

Literature review

Minority stress model

The minority stress model (Meyer, 1995, 2003, 2007) is a framework for understanding the types of chronic stressors faced by stigmatized groups that can impact their health and well-being. These stressors can include both forces that are external to the individual (e.g., harassment, discrimination, and violence) as well as internal to the individual (e.g., anticipated stigma in various situations and feelings of shame related to one's minority identity). In recent years, scholars have been applying this model to transgender and gender nonconforming people (see, for example, Effrig, Bieschke, & Locke, 2011; Hendricks & Testa, 2012; Herman, 2013; Seelman, 2016). This model can help us understand factors that may contribute to transgender health disparities—both because transgender people may anticipate and experience increased risks for discrimination, poor health-care treatment, and abuse in health-care settings when seeking care *and* because transgender people may be internalizing their stress related to these social forces, resulting in delaying needed medical care, greater mental distress, and the development of stress-related physical health conditions. This study uses this conceptual model to guide our work, specifically in looking at whether transgender men may have less access to health care and weakened engagement in certain preventive health behaviors that involve interactions with a health-care provider.

Health disparities impacting transgender men

Partially due to barriers to adequate health care, as well as the internal and external stressors previously explained, transgender people face increased risks for psychological distress, self-injury, suicidal ideation, and lifetime suicide attempts compared to cisgender adults (Effrig et al., 2011; James et al., 2016). In the 2015 U.S. Transgender Survey, 40% of participants had attempted suicide in their lifetime, including 45% of trans men, compared to a typical lifetime prevalence of 4.6% in the general population (James et al., 2016). Greater risks for mental health challenges among trans adults are correlated with experiences of discrimination, enacted or felt stigma, and violence (Bockting, Miner, Swinburne Romine, Hamilton, & Coleman, 2013; Clements-Nolle, Marx, & Katz, 2006), as well as anticipated stigma, such as delaying health-care treatment due to fear of discrimination (Seelman, Colón-Diaz, LeCroix, Xavier-Brier, & Kattari, 2017).

Although there is less research about physical health disparities among trans men compared to cisgender adults, FTM individuals in one study reported lower quality of life than the general population and were found to have decreased

physical health compared to cisgender men but not cisgender women (Newfield, Hart, Dibble, & Kohler, 2006). Health problems can occur in part due to discrimination occurring within sex-segregated spaces, such as restrooms, locker rooms, jails or prisons, and homeless shelters (Factor & Rothblum, 2008; Grant et al., 2011; James et al., 2016), as well as attempting to avoid using public restrooms altogether (Zamantakis, Miller, & Chace, 2017). Trying to avoid using public restrooms for long periods of time can lead to health issues such as urinary tract infections or dehydration (Herman, 2013; James et al., 2016). Such evidence of disparities in mental and physical health by gender identity highlights the critical role that both preventive and intervening health-care efforts might be able to play for promoting health among transgender men.

Barriers to care

Trans men's health disparities are tied to the greater difficulty in accessing health care compared to the general population (Bradford, Reisner, Honnold, & Xavier, 2013; Lombardi, 2009). Notable barriers including widespread stigma and discrimination, lower likelihood of having health insurance, and a lack of transgender-specific expertise in medical care. In an internet-based convenience sample of 464 trans men (Bockting et al., 2013), 32.5% reported difficulties receiving health services. Furthermore, 5% of transgender men reported difficulty accessing HIV prevention services, compared to 2.2% of transgender women (Bockting et al., 2013). In a study that included 131 transgender participants, 13.8% of transgender people did not have insurance, while this was true of only 5.8% of cisgender people (Conron, Scott, Stowell, & Landers, 2012).

Even when transgender individuals can access health care, there is a remarkable lack of medical expertise related to basic health care for transgender people (Grant et al., 2011). Medical school curricula have very little, if any, representation of lesbian, gay, bisexual, and transgender (LGBT) health in the classroom (Obedin-Maliver et al., 2011). A common mistaken belief of the medical community is that trans patients are seen nearly exclusively by endocrinologists or other specialists (Callahan, 2015). However, this is not the case; primary care needs to be attainable and meet the general needs of transgender individuals (Callahan, 2015; Shires, Stroumsa, Jaffee, & Woodford, 2017).

Although many health-care professions abide by a code of ethics, health-care workers may have an unconscious bias that influences their practice, including the care they deliver to patients (Foglia & Fredriksen-Goldsen, 2014; Kattari & Hasche, 2016). A national survey of 1,711 transgender men found that 40% experienced discrimination from a health-care provider (Shires & Jaffee, 2015). In another study, 69% of transgender men reported that their identity "created a problem for them when going for a physical" (Kenagy & Bostwick, 2005, p. 63). Half of transgender participants in a national survey reported having to educate their providers about transgender experience (Grant et al., 2011). Ultimately,

this stigma leads to a fear of seeking services for many trans individuals, even compared to their LGB peers (Fredriksen-Goldsen et al., 2013). Particularly for transgender populations, a distrust in health-care providers coupled with a lack of health-care access may cause trans people to fulfill their medical needs outside of certified medical institutions. One study mentions that 71% of transgender men have reported injecting hormones without formal medical supervision (Poteat, German, & Kerrigan, 2013). Nonetheless, few studies have utilized a population-based sample of trans men in comparison to cisgender adults regarding access to health care, including likelihood of having a regular personal doctor, being able to afford health-care costs, and having health insurance.

Specific subgroups of transgender adults may be at particular risk for facing barriers to health care. A statewide survey in Colorado found that trans patients with higher annual household income (>$75,000) were less likely to delay needed medical care than those with lower income (Seelman et al., 2017). Qualitative research and evidence from practitioners has pointed to the particular barriers that trans patients in rural areas may have in accessing health care, including lack of transportation, difficulty locating any competent health-care providers in their region, being thrown out of a doctor's office for being transgender, and lack of support groups during the transition process (Knutson, Koch, Arthur, Mitchell, & Martyr, 2016; Koch & Knutson, 2016). Such research indicates that the intersection of identities in terms of income, race/ethnicity, and rural residence may be important considerations when examining barriers to care for transgender men.

Trans men's engagement in preventive health behaviors

The Centers for Disease Control and Prevention (CDC, 2017) maintain that eating a balanced diet, being physically active, and engaging in preventive health behaviors (i.e., recommended health screenings throughout the life course) are the hallmarks of a healthy lifestyle and can help prevent or delay onset of illness. Yet, individuals in the U.S. use preventive services (e.g., health screenings, wellness visits, vaccinations, etc.) at around half the recommended rate (CDC, 2017). The likelihood of using those services is further lessened when individuals are subject to social, economic, and/or environmental disadvantages (CDC, 2017). As mentioned previously, transgender individuals face an array of barriers to obtaining health care more often than the general population (Bradford et al., 2013; Lombardi, 2009). The literature illustrates the complex, and often negative, relationship that trans individuals may have with the institutions of medicine. Based on the barriers to care that trans individuals often face, they may be wary to engage with health-care institutions and therefore delay needed medical care (James et al., 2016). Trans adults' engagement in preventive health practices cannot be fully understood without first acknowledging those concerns.

Little-to-no research has looked at transgender men's preventive health behaviors compared to cisgender adults—including frequency of regular physical exams, HIV testing, receiving blood cholesterol screenings, engaging in exercise, and receiving a yearly flu shot—or indicated whether these behaviors should be encouraged at similar frequencies as for the general population. Health-care guidelines from the Center of Excellence for Transgender Health at the University of California, San Francisco currently suggest that there is little evidence of differences in cardiovascular risk for transgender men compared to the general population (Radix & Deutsch, 2016), implying that cholesterol screening recommendations would be similar to those for the general adult population. HIV screening recommendations do not differ for transgender people compared to the general population of adults, with a suggested one-time screening for all adults (Poteat, 2016). Additional screening recommendations would be based on an HIV-risk assessment and the sexual behavior history of the patient (Poteat, 2016).

While a systematic review has suggested that HIV is less prevalent among transgender men than transgender women (Herbst et al., 2008), a multinational study of trans men who have sex with men (MSM) found that they tend to have less access to HIV testing than cisgender MSM (Scheim et al., 2016). Further, experiencing health-care provider stigma was related to lower access to HIV testing (Scheim et al., 2016). A study conducted in San Francisco estimated a prevalence of HIV infection among transgender men between 0% and 3.3%, which is more like infection prevalence among heterosexual men and women than to that of MSM or trans women (McFarland, Wilson, & Raymond, 2017). Even though the prevalence of HIV may be lower among trans men, if this population—including those engaged in higher risk sexual behaviors—has less access to HIV testing, they are similarly less likely to have access to either pre-exposure prophylaxis, HIV treatments, or strategies for preventing further transmission of HIV (Scheim et al., 2016). Additionally, not having access to HIV testing can also mean that trans men lack access to other forms of preventive care and sexual health services and information, as has been documented in other research (Reisner, Perkovich, & Mimiaga, 2010; Sevelius, 2009).

As with barriers to health-care access, there may be differences in preventive health behaviors by socioeconomic status, race/ethnicity, and rural residence among transgender men. Although little research has been done specific to trans populations in this area, past work on preventive health and testing behaviors among general adult populations has documented differences in preventive health behaviors by socioeconomic status (Nettle, 2010), rural residence (such as lower likelihood of meeting aerobic exercise guidelines, Matthews et al., 2017), and race/ethnicity (such as elevated risks for undiagnosed HIV infection among Blacks and Latinos, Chen et al., 2012). Additional knowledge regarding transgender men's engagement in preventive health behaviors and care,

including attention to intersectional differences in behaviors, will be necessary to understand their health risks and to develop interventions that may increase engagement in the types of modifiable health behaviors that can address health disparities.

Major gaps and current study

While barriers to health care are well-documented, there are few generalizable, population-based studies comparing trans men's access to health care or engagement in preventive health behaviors across the U.S. to that of cisgender adults, the latter of whom are an important comparison group for documenting disparities. Additionally, there is a need for research that looks at the potential ways that sociodemographic factors may moderate any disparities in health-care access or preventive health behaviors, indicating whether certain subgroups of trans men may be particularly in need of interventions to increase access or encourage preventive health behaviors. This study aims to address these gaps.

Our hypotheses are as follows: (a) transgender men will have less access to health care (access to a personal doctor, affordable care, and health insurance) than cisgender individuals; (b) transgender men will engage in preventive health behaviors that involve interaction with health-care providers (i.e., regular check-ups and blood cholesterol screening) as well as HIV testing less often than cisgender adults; however, they will engage in preventive health behaviors that do not necessarily require interaction with a health provider (i.e., flu shots and regular exercise) as often as cisgender adults; (c) access to health care and engagement in preventive health behaviors will be moderated by other factors related to health disparities (race/ethnicity, socioeconomic status, and urban/rural residence) such that subgroups that often face barriers to health care and increased disparities will show similar patterns of disparity among trans men.

Methods

The Behavioral Risk Factor Surveillance System (BRFSS) is an annual health survey led by the CDC and carried out by state health departments. The survey is designed to collect information about health risks and preventive health behaviors among the U.S. adult population through phone interviews (landline and cellphone; CDC, 2013). The BRFSS uses complex sampling procedures (disproportionate stratified sampling for landline phones and random sampling for cell phones) and includes weighted data; when these factors are taken into account, the data are designed to be generalizable to the U.S. population of adults (CDC, 2013).

The standard core questions on the BRFSS must be asked by every state and typically focus on health conditions (heart attacks, asthma, diabetes, cancer, etc.), access to health care, use of health-care services, and

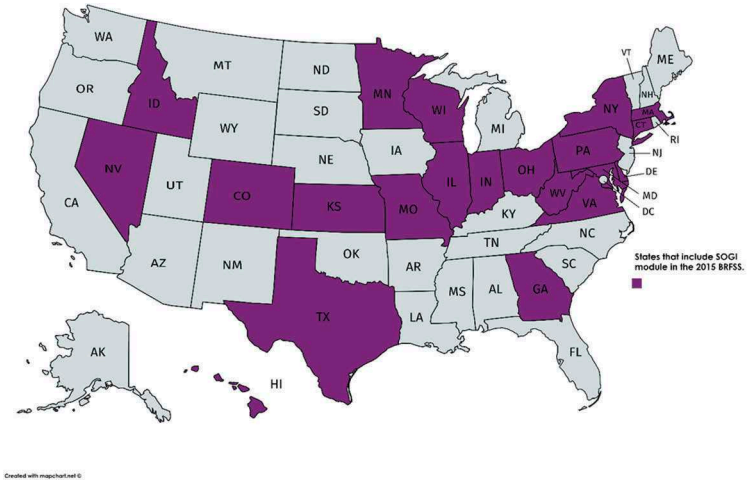

Figure 1. Map of U.S. states that participated in the 2015 BRFSS and included the SOGI module.

demographic background. Other questions rotate from year-to-year or are optional (CDC, 2013). In 2015, 21 states (see Figure 1) used the optional Sexual Orientation and Gender Identity (SOGI) module, which included a question about transgender identity: *Do you consider yourself to be transgender?* If the respondent answered yes, they were then asked to indicate whether they were "male-to-female," "female-to-male," or "gender nonconforming." Since our analysis focuses on comparing trans male individuals to cisgender adults, our data come from the 21 states that ask this question on gender identity in their survey. This measure occurred near the end of the telephone survey and was separate from a binary measure of sex (male or female), which is designated by the interviewer at the beginning of the survey based on the interviewer's perception of the participant's voice and only asked "if necessary" (CDC, 2014, p. 15).

Measures

In addition to the gender identity question mentioned above (in which we compared those responding "female-to-male" transgender with those who were not transgender), we include several other survey questions in our analyses. We dropped any respondents who answered "Don't know" to these measures, unless otherwise stated.

Dependent variables

Our first hypothesis focuses on whether transgender men had less access to health care compared to cisgender adults, which was studied using three dependent variables. The first was based on the question, *Do you have one person you think of as your personal doctor or health-care provider?* Those who had at least one

provider were coded as 0 (the reference group) and those with no provider as 1. The second outcome of interest was related to not having access to needed medical care due to cost: *Was there a time in the past 12 months when you needed to see a doctor but could not because of cost?* Those who responded "No" were coded as 0 and those who responded "Yes" were coded as 1. The third outcome in terms of access was related to health insurance: *Do you have any kind of health-care coverage, including health insurance, prepaid plans such as HMOs, government plans such as Medicare, or Indian Health Service?* Those who responded as "Yes" were coded as 0, and those who responded "No" or "Don't know" were coded as 1.

Our second hypothesis looked at engagement in preventive health behavior outcomes. The first measure examined HIV testing: *Have you ever been tested for HIV?* Those who had been tested were coded as 1, and those who had not been tested were coded as 0. The second measure captured time since last checkup: *About how long has it been since you last visited a doctor for a routine checkup?* Responses included: "Within past year" (coded as 1), "Within past two years (one year but less than two years ago)" (2), "Within past five years (2 years but less than 5 years ago)" (3), "Five or more years ago" (4), and "Never" (5). The next measure examined blood cholesterol screening: *Blood cholesterol is a fatty substance found in the blood. Have you EVER had your blood cholesterol checked?* Those who had been tested were coded as 1, and those who had not were coded as 0. The fourth outcome measure focused on exercise: *During the past month, other than your regular job, did you participate in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise?* Those who had exercised were coded as 1, while those who had not were coded as 0. Finally, we examined whether respondents reported receiving a flu vaccine: *During the past 12 months, have you had either a flu shot or a flu vaccine that was sprayed in your nose?* Those who had were coded as 1, and those who had not received a vaccine were coded as 0.

Control variables

We included control variables that tend to be related to health-care access and engagement in preventive health behaviors in our multivariate models. Our first control variable, annual household income, was recoded into four intervals, ranging from "Less than $25,000" (coded as 1) to "$75,000 or more" (coded as 4). Because the income measure could have different consequences by household size, we incorporated a variable capturing household size by summing two questions that asked for the total number of children and adults in the household. Educational attainment was based on the question, *What is the highest grade or year of school you completed?* We recoded this to be a dichotomous variable, where 1 = a high school diploma/GED or less, and 0 = at least some college. Metropolitan residence was based on one of the weighting variables created by the CDC within the dataset to indicate whether respondents lived in a metropolitan statistical area as determined by federal government definitions. We recoded this variable to be dichotomous, with 0 = living in a city or a suburb of a metropolitan statistical area

and 1 = not living in a metropolitan statistical area (rural). Current age was captured in 5-year intervals, ranging from 18–24 (coded as 1) to 80 and older (coded as 13). We chose to capture race/ethnicity as a dichotomous variable due to the small cell sizes that would result in our model matrices if we used more than two categories. Since those who were Hispanic, Latinx,[1] or of Spanish origin (weighted estimate of 13.2% of all adults and 31.9% among transgender men) were the largest minority group and are documented in the literature as facing particular barriers to health care and engagement in preventive health behaviors such as HIV testing (see, for example, Chen et al., 2012; Pérez, Santamaria, & Operario, 2017), we created a dichotomous variable for which 1 = Hispanic, Latinx, or of Spanish origin and 0 = not Hispanic, Latinx, or of Spanish origin.

Additional control variables were added to the blood cholesterol testing models due to the relationship between risks for cardiovascular disease and recommendations for blood cholesterol screening. These included dichotomous variables for: (a) being a current or former smoker, (b) ever being told that one had diabetes (not including gestational diabetes), (c) currently being in the overweight BMI category (BMI > 25), and (d) whether one had exercised in the past month (measured identically as the exercise outcome variable).

Interaction terms

To examine whether outcomes for transgender men were moderated by either ethnicity, socioeconomic status, or urban/rural residence, we created several interaction terms. These included interactions between FTM identity and (a) Hispanic/Latinx identity, (b) household income, (c) college education, and (d) rural residence.

Statistical analyses

The BRFSS dataset was downloaded from the CDC website and analyzed using SPSS version 24 with the complex samples add-on. We used chi-square tests to examine bivariate relationships between FTM gender identity and the outcome variables of interest related to health-care access and preventive health behaviors. For our multivariate models, we conducted complex samples logistic regression.

Results

Sample

Our analyses focused on the 21 states including the SOGI module, comparing those respondents who said they were female-to-male transgender (weighted estimate 0.2%, unweighted n = 237) with those who were not transgender (unweighted n = 163,685). We removed transgender women and gender non-conforming respondents from our analyses. Table 1 includes descriptive

Table 1. Transgender men compared to cisgender adults: Sociodemographic characteristics, health-care access, and preventive health behaviors of 2015 BRFSS respondents (weighted estimates).

	Cisgender (*N* = 163,685)	Transgender Men (*N* = 237)	Pearson χ^2
Total	99.8%	0.2%	
Age, years			58.8*
18–29	18.9%	21.6%	
30–39	16.1%	30.4%	
40–49	16.2%	18.3%	
50–59	19.3%	9.8%	
60–69	15.6%	8.1%	
70–79	9.2%	9%	
80 and up	4.7%	2.8%	
Race/ethnicity			106.4**
White only, non-Hispanic	68.9%	49.5%	
Hispanic	13.1%	31.9%	
Black only, non-Hispanic	11.8%	8.2%	
Other race, non-Hispanic	4.8%	10.2%	
Multiracial, non-Hispanic	1.4%	0.3%	
Educational Attainment			211.41***
Less than Grade 12	13.1%	41.2%	
Grade 12 or GED	29%	33.3%	
Some college/tech school	30.8%	13.6%	
College grad	27.1%	11.8%	
Location of residence			0.09
City or suburb	82.6%	83.4%	
Rural area	17.4%	16.6%	
Household Income per Year			49.07*
<$25,000	25.9%	36.9%	
$25,000–$49,999	24.4%	36.4%	
$50k–$74,999	15.7%	4.9%	
$75,000 or more	34.1%	21.8%	
Health Insurance			175.41***
Yes	88.5%	62.5%	
No or don't know	11.5%	37.5%	
Personal Doctor			26.82*
Yes, one or more	80.8%	68.2%	
No	19.2%	31.8%	
Financial Barriers			37.24*
Yes, needed a doctor but couldn't access due to cost	12.3%	24.5%	
None	87.7%	75.5%	
HIV test			0.08
Tested for HIV	36.6%	35.7%	
Never tested	63.4%	64.3%	
Last routine checkup			6.83
Within past year	71.1%	64.8%	
Within past 2 years	12.7%	14.2%	
Within past 5 years	8%	10.5%	
5 or more years ago	7.1%	8.4%	
Never	1.1%	2.2%	
Blood cholesterol test			44.4**
Yes	82.7%	67.2%	
No	17.3%	32.8%	
Exercise, other than job			59.23**
Yes, in past month	72.7%	51.7%	
No	27.3%	48.3%	
Flu shot in past 12 months			5.18
Yes	41.7%	34.9%	
No	58.3%	65.1%	

Note. $^*p < .05$; $^{**}p < .01$; $^{***}p < .001$.

statistics for our sample by gender identity, as well as the prevalence of each outcome measure related to health-care access and preventive health behaviors. As can be seen from this table, only five outcome measures of interest showed statistically significant chi-square results by gender identity: having a personal doctor or health-care provider, facing a financial barrier to seeking medical care when needed in the past year, having health insurance, receiving a blood cholesterol test, and engaging in physical activity in the past month. These outcome variables were thus selected for further exploration in multivariate models. Whether an individual had ever been tested for HIV or received a flu shot in the past year, and the length of time since last routine checkup, were not significantly different between trans men and cisgender adults.

Hypothesis 1: access to health care by gender identity

Our first hypothesis is that transgender men would report less access to health care than cisgender adults. Chi-square tests (Table 1) indicate that before controlling for related factors, there are significant differences in access to a personal doctor, financial barriers to needed medical care, and health insurance coverage, with transgender men having less access across all three items. We further explored these outcome measures through our multivariate logistic regression models (Table 2).

Access to a personal doctor

There were no statistically significant differences found for FTM identity and access to a personal doctor once adding control variables to our model; all control variables were statistically significant (see Table 2).

Financial barriers to needed medical care

No statistically significant differences were found between FTM and cisgender individuals related to having a financial barrier to obtaining medical care when needed, after controlling for sociodemographic variables (see Table 2).

Health insurance coverage

There was a marginal difference between FTM and cisgender individuals' health-care coverage after adding control variables ($p < .10$; AOR = 2.13, see Table 2).

Hypothesis 2: preventive health behaviors by gender identity

Our second hypothesis is that transgender men would engage in preventive health behaviors that involve going to a doctor's office (routine checkups, blood cholesterol screening) and HIV testing less often than cisgender adults, but engage in behaviors that do not require interaction with the health-care providers (flu shots, exercise) as often as cisgender adults. As mentioned earlier, initial

Table 2. Complex samples logistic regression with control variables: Access to a personal doctor, financial barriers to needed medical care, health insurance coverage, and engagement in exercise.

	Access to a Personal Doctor (N = 81,963)		Financial Barriers (N = 82,035)		Health Insurance Coverage (N = 82,124)		Exercise (N = 82,055)	
	B (SE)	AOR	B (SE)	AOR	B (SE)	AOR	B (SE)	AOR
Constant	0.10 (0.13)		−0.25 (0.13)		−0.56 (0.17)***		−0.93 (0.09)***	
FTM transgender	0.63 (0.52)	1.93	−0.20 (0.58)	0.82	0.76 (0.46)^	2.13	0.58 (0.42)	1.79
Household income	−0.24 (0.02)***	0.79	−0.69 (0.03)***	0.50	−0.59 (0.04)***	.55	−0.28 (0.02)***	0.76
Household size	−0.05 (0.02)*	0.95	0.11 (0.02)***	1.12	0.08 (0.03)**	1.08	0.04 (0.01)**	1.04
College education	0.17 (0.06)**	1.19	0.03 (0.06)	1.03	0.46 (0.08)***	1.59	0.42 (0.04)***	1.52
Metropolitan status	0.21 (0.06)***	1.23	0.05 (0.07)	1.05	0.25 (0.09)**	1.29	0.05 (0.04)	1.05
Age	−0.23 (0.01)***	0.80	−0.11 (0.01)***	0.89	−0.21 (0.01)***	0.81	0.05 (0.01)***	1.06
Hispanic	0.60 (0.10)***	1.82	0.55 (0.09)***	1.72	1.06 (0.12)***	2.89	0.07 (0.07)	1.07

Note. SE = standard error; AOR = adjusted odds ratio; FTM = female-to-male.
^$p < .10$; *$p < .05$; **$p < .01$; *** $p < .001$.

chi-square tests did not indicate significant differences by gender identity for routine checkups or HIV testing (contrary to our hypothesis) or getting flu shots (in line with our hypothesis). There were statistically significant differences by gender identity for blood cholesterol screening and engagement in exercise, so these two behaviors are further explored in multivariate models.

Blood cholesterol screening

After accounting for our control variables, including risk factors for cardiovascular disease, no statistically significant differences were found between FTM and cisgender individuals having their blood cholesterol checked; the controls of income, college education, metropolitan status, age, diabetes, overweight/obese, and exercise were statistically significant (see Table 3).

Exercise

No statistically significant differences were found between FTM and cisgender individuals' physical activity after controlling for sociodemographic variables (see Table 2).

Hypothesis 3: moderation by other identities related to health disparities

Our third hypothesis is that access to health care and engagement in preventive health behaviors for transgender men would be moderated by other factors related to health disparities—specifically, being Hispanic/Latinx, having lower income, having less than a college education, and living in a rural

Table 3. Blood cholesterol screening: Complex samples logistic regression with control variables and with interaction terms (N = 77,432).

	Model with Controls		Model with Interaction Terms	
	B (SE)	AOR	B (SE)	AOR
Constant	0.90 (0.17)***		0.90 (0.17)***	
FTM transgender	0.29 (0.75)	1.34	0.82 (1.84)	2.26
Household income	−0.30 (0.03)***	0.74	−0.30 (0.03)***	0.74
Household size	0.03 (0.02)	1.03	0.03 (0.02)	1.03
College education	0.73 (0.08)***	2.07	0.74 (0.08)***	2.09
Metropolitan status	0.22 (0.08)**	1.25	0.22 (0.08)**	1.24
Age	−0.36 (0.01)***	0.70	−0.36 (0.01)***	0.70
Hispanic	0.11 (0.12)	1.12	0.11 (0.12)	1.12
Smoker	−0.01 (0.07)	1.00	−0.01 (0.07)	0.99
Diabetes	−0.98 (0.16)***	0.38	−0.98 (0.16)***	0.38
Overweight/obese	−0.52 (0.07)***	0.59	−0.52 (0.07)***	0.59
Exercise	−0.33 (0.07)***	0.72	−0.33 (0.07)***	0.72
Interaction Terms				
Household income x FTM			0.01 (0.48)	1.01
College education x FTM			−2.24 (1.10)*	0.11
Rural x FTM			2.18 (1.02)*	8.84

Note. SE = standard error; AOR = adjusted odds ratio; FTM = female-to-male.
*$p < .05$; **$p < .01$; ***$p < .001$.

area. We constructed these interaction terms for each of the models (personal doctor, financial barrier to health care, health insurance coverage, blood cholesterol screening, and exercise); due to small cell sizes, we tested all models other than the personal doctor model for results with and without the Hispanic*FTM interaction, though this did not greatly change results for other variables. Contrary to our hypothesis, none of the interaction terms were significant for the models related to financial barriers to health care, health insurance coverage, or engagement in exercise (not displayed). However, some significant interactions occurred for the models examining access to a personal doctor and blood cholesterol screening.

Personal doctor

The interaction of Rural*FTM had a significant relationship with having a personal doctor. FTM individuals living in a rural area were almost nine times less likely to have a personal doctor than FTM individuals living in an urban area (see Table 4).

Blood cholesterol screening

The interactions of College Education*FTM and Rural*FTM were significant in relationship to blood cholesterol screening. FTM individuals with a high school diploma or less were 89% more likely to have had their blood cholesterol checked than FTM individuals with some college education, a pattern that is different from our hypothesis. FTM individuals living in rural areas were almost nine times less likely than those living in urban or suburban areas to have had their blood cholesterol checked, even after controlling for factors related to cardiovascular disease risk (see Table 3).

Table 4. Access to a personal doctor: Complex samples logistic regression with interaction terms (N = 81,963).

	B (SE)	AOR
Constant	0.11 (0.13)	
FTM transgender	−1.32 (1.33)	0.27
Household income	−0.24 (0.02)***	0.78
Household size	−0.05 (0.02)*	0.95
College education	0.17 (0.06)**	1.19
Metropolitan status	0.20 (0.06)***	1.22
Age	−0.23 (0.01)***	0.80
Hispanic	0.60 (0.10)***	1.81
Hispanic x FTM	2.45 (1.35)^	11.57
Household income x FTM	0.58 (0.30)^	1.79
College education x FTM	−0.97 (0.89)	0.38
Rural x FTM	2.19 (0.88)*	8.90

Note. SE = standard error; AOR = adjusted odds ratio; FTM = female-to-male.
^$p < .10$; *$p < .05$; **$p < .01$; ***$p < .001$.

Discussion

Based on generalizable data from 21 states, our study aimed to shed light on an understudied population (transgender men) and their access to health care and engagement in preventive health behaviors compared to cisgender adults, as well as how sociodemographic factors may moderate existing disparities. The results of this study indicate that transgender men have less access to health care—whether measured as having access to a personal doctor, affordable care, or health insurance coverage—than cisgender adults. However, these differences are no longer statistically significant when controlling for other factors that tend to impact health-care access, such as income, age, ethnicity, and rural residence. Such findings may, on one hand, indicate that there is not a difference in health-care access between transgender men and cisgender adults, once accounting for other sociodemographic factors. Such a result suggests that health-care providers who wish to increase access to care for transgender populations should utilize intersectional strategies that work to combat income and racial inequalities. Such intersectional strategies include, but are not limited to, offering sliding scale fees for lower income adults and intentionally hiring bi- and multi-lingual providers and medical staff who know the needs of local ethnic communities. However, this lack of significance may also be a function of not having enough statistical power in our analyses, as only 0.2% of the BRFSS sample identified as transgender men, thus creating some very small cell sizes within our analysis (we further discuss this issue within the Limitations section).

In terms of engagement in preventive health behaviors, transgender men reported less frequent engagement in some behaviors, such as blood cholesterol screening, than cisgender adults, though these differences became statistically insignificant after controlling for other factors. Trans men received checkups and HIV tests, as well as flu shots, as often as cisgender adults. Such findings are promising and in contrast to other studies of HIV testing specifically among trans MSM (see Scheim et al., 2016) and demonstrate that transgender men are accessing some services, including those that may require interaction with a doctor. However, it is worth noting that current health-care guidelines suggest that all adults—including transgender adults—be screened for HIV at least once in their lifetime (Poteat, 2016); yet, the rate of lifetime HIV testing in this sample (36.6% among cisgender adults and 35.7% among transgender men) is still well below this recommendation. While this study indicates similar prevalence of HIV testing among trans men and cisgender adults, the BRFSS does not include measures important to measuring HIV risk, such as sexual behavior or intravenous drug use. Because of this, further investigation into these risk behaviors and related HIV testing behaviors among population-based samples of trans men is important.

Transgender men did not engage in exercise as often as cisgender adults, a finding that was not necessarily expected. We theorize that gyms—a frequent setting for exercise—could pose similar distress or fear of discrimination for trans men as public restrooms, including access to gender-specific locker rooms (Seelman et al., 2012). As physical activity and exercise facilities are body-centric, this could play a role in one's decision to partake in, at least, *public* displays of physical activity if they feel their bodies are under inspection by others. This finding deserves further investigation, particularly since our measure of exercise did not specify whether activities were done alone or in front of others. Nonetheless, differences in exercise by gender identity did not occur when controlling for other factors such as income, college education, and age. One possible explanation for this finding is the positive relationship that tends to exist between socioeconomic status and physical activity (Pampel, Krueger, & Denney, 2010). Again, a lack of power within our statistical analyses may have also been an issue, making it difficult to detect statistically significant findings in preventive health behaviors by gender identity.

Our third hypothesis was that transgender men's access to health care and engagement in preventive health behaviors would be moderated by other variables—specifically, ethnicity, socioeconomic status, and rural residence. For several of our models, including financial barriers to health care, health insurance coverage, or engagement in exercise, we found no significant moderators. However, transgender men living in rural areas were nearly nine times *less likely* than transgender men in urban areas to say that they have someone they consider to be a personal doctor. This finding emphasizes the difficulty that trans men may have in accessing a trans-competent medical provider outside of major cities, something that has been similarly identified as a barrier by Koch and Knutson (2016), who note that sometimes transgender individuals must travel to the nearest large city to receive competent health care. These authors recommend tele-health as one solution for addressing some of the transportation barriers that exist for transgender patients and for increasing access to a network of trans-competent providers. There may be a critical need for outreach efforts to increase trans people's access to primary health care in rural areas, coordination of transportation support services, as well trainings for health-care providers in these regions on trans competency (Koch & Knutson, 2016).

Receiving a blood cholesterol screening was moderated by a few factors. Trans men with less than a college education were 89% *more likely* to say they have had their blood cholesterol checked than trans men with at least some college education, a result that was different than our expectation. Additionally, trans men in rural areas were almost nine times less likely than those in urban or suburban areas to have had their blood cholesterol checked. Our findings indicate that there are differences in testing behaviors

by educational level and rurality of transgender men, which could perhaps be tied to whether men with these different backgrounds are using testosterone therapy and are being advised to check their cholesterol. However, the BRFSS did not include questions about testosterone therapy, so we were unable to explore this relationship (further discussed in our Limitations). Doctors, social workers, and other health-care providers serving rural patients or those with less education may be operating with different levels of knowledge around trans men's health needs that are impacting the types or frequency of health screenings that they conduct with such patients.

Implications for social work

Gender and sexual minorities are often conceptualized as a monolithic "LGBT" community. Consequently, the health-care needs of transgender men are inappropriately generalized to be the same as for the rest of the LGBT community (Institute of Medicine, 2011). Research and education regarding transgender men should be more attuned to the specific needs of this subgroup rather than lumped into the LGBT moniker. This study addressed this common problem by focusing exclusively on comparing transgender men to cisgender adults. By doing so, we were able to uncover how patterns that exist for trans men's health-care experiences may not be exactly similar to that of other LGBT people. For example, after controlling for psychosocial factors, we found regular patterns of nonsignificant differences in health-care access and preventive health behaviors between trans men and cisgender adults. These results differ from past studies where, for example, lesbian and bisexual women had less access to health insurance than straight women (Diamant, Wold, Spritzer, & Gelberg, 2000), lesbians were less likely to have a routine checkup in the past year than heterosexual women (Blosnich, Farmer, Lee, Silenzio, & Bowen, 2014) or where men in same-sex relationships were less likely to have health insurance but more likely to receive a routine checkup compared to men in different-sex relationships (Buchmueller & Carpenter, 2010). While transgender men may face some commonalities with other LGBT populations, such as the experience of stigma in health care, highlighting such nuance in the evidence base is important in better serving this group. Transgender education is generally lagging in social work programs (Shires & Jaffee, 2015), and this needs to be improved.

Social workers have a great opportunity to advocate for transgender clients, especially as many social workers work in health-care settings alongside other medical health providers. One way trans advocacy could manifest is through increasing the awareness of social workers regarding local resources geared toward transgender individuals. Additionally, with increased knowledge of the health-care barriers transgender individuals

face, social workers can develop ways to help these individuals navigate use of Medicare, Medicaid, or the Affordable Care Act health-care marketplaces, as well as the state-specific policies specific to medical transition, if applicable.

When trans-affirming care or other similar resources are not available, social workers can and should still play a role as an advocate for their trans clients by becoming knowledgeable about transgender health needs and ways of affirming this population. Some of the protective factors that make a difference for reducing transgender men's health disparities include resilience, family support, peer support, identity pride, social acceptance, and decreased gender-based prejudice (Bockting et al., 2013; Grant et al., 2011; Lombardi, 2010). Efforts at transgender cultural competency, such as using a patient's correct pronouns, can have large effects on engagement in care (Shipherd, Green, & Abramovitz, 2010). With increased awareness of the health-care issues trans individuals face, social workers are uniquely situated to provide furthered support for transgender individuals, even when institutional support may be lacking.

Trainings on cultural competency are one important strategy for raising awareness among social workers (Kattari & Hasche, 2016), though training must not stop there. Schools of social work, including those in rural areas where access to transgender-competent care is difficult, can ensure that their curricula include content about the barriers to adequate trans health care and strategies for challenging discrimination and stigma and promoting resilience. Social workers have many opportunities to offer affirmation and overall socioemotional support to transgender clients—whether the client is questioning their gender identity, seeking medical and/or legal transition, navigating health insurance policies, or searching for other support. Licensed clinical social workers play a particularly important role for trans clients, as these professionals may be asked to provide documentation or referrals that can help trans individuals access medical treatment, such as hormone therapy, and make changes to identity documents (WPATH, 2011). Gender expression within the transgender community is evolving and can be complex (Bockting, Robinson, Benner, & Scheltema, 2004), so the field of social work must evolve and progress service delivery with this community, with careful and respectful attention to the nuanced complexities of trans people.

Limitations and suggestions for future research

While this study offers some unique contributions to the knowledge base, including the use of a population-based dataset that is generalizable and allowed for focused analysis on the subpopulation of transgender men, there are notable limitations. First, this study only examined health-care access and preventive health efforts, not any specific health conditions.

There is a need for longitudinal research with this population to study the connection between health-care access, preventive health behaviors, and long-term health outcomes. This would help shed light on health disparities in this population across the life course, as well as needed changes in health-care policy at the state and federal levels. Additionally, while this study offered findings specific to transgender men, future research is needed to better understand the health-care experiences and health disparities impacting transgender women, as well as nonbinary individuals.

The BRFSS utilizes general questions about health-care access and conditions. While the use of this survey is a step forward in our ability to examine this understudied population, further research is necessary for a more nuanced understanding of the health of trans men. This is particularly true regarding the degree of competency and inclusiveness among providers and how that can affect health-care access and health outcomes, as profoundly negative experiences with health care and health-care providers among trans patients are well-documented (Bockting et al., 2004; Callahan, 2015; Grant et al., 2011; Kattari & Hasche, 2016; Kosenko, Rintamaki, Raney, & Maness, 2013). Some medical settings have heeded the call by implementing more inclusive medical record and intake form processes, and this practice has the potential to improve experiences of trans and/or nonbinary patients (Deutsch & Buchholz, 2015; Mogul-Adlin, 2015).

As mentioned earlier, the statistically significant moderations by rurality and education level related to cholesterol screening could, theoretically, be related to differences in use of testosterone therapy and connections to getting blood cholesterol screened as part of initiating such therapy. Additional research can help uncover the relationship between testosterone therapy and cholesterol, as well as why certain subgroups of trans men are less often getting their cholesterol checked.

Additionally, our analytic approach may have been hampered by a lack of statistical power because the subsample identifying as transgender men was very small (weighted estimate 0.2%, unweighted n = 237). Future studies of transgender men's health-care access and preventive health behaviors that wish to draw comparisons to cisgender adults may want to either oversample transgender men or utilize matched sampling approaches to achieve greater power in statistical analyses. Further, our analysis was limited to the 21 states that included the question about gender identity in their module; we encourage continued expansion of health data collection to other parts of the country and to move from assuming a respondent's sex based upon the person's voice to asking explicit questions about sex and gender using best practices for measurement of these characteristics (The GenIUSS Group, 2013).

Overall, increased awareness of transgender men and their experiences in health care and engagement in health promoting behaviors is necessary to

better understand and appropriately serve this population's medical needs, particularly given how little attention has been given to this subpopulation of trans adults. This is the case regardless of whether those needs differ from cisgender adults, as an overall lack of access to trans-affirming care is well-documented. Medical providers, researchers, and administrators can and should also call upon the extensive research related to transgender individuals within the social sciences and/or related interdisciplinary fields, as transgender identities have been historically misunderstood within medicine due to essentialist approaches to gender and pathologizing of gender nonconformity (Mogul-Adlin, 2015). The field of social work is uniquely situated to help bridge that gap through its interaction with both clients and the health-care system while recognizing the diversity within and among transgender and gender nonconforming populations. As such, social workers need to stay abreast of developments related to transgender and gender nonconforming people in order to advocate for transforming our health-care system to be more "just" for clients of all genders.

Note

1. *Latinx* is a gender-neutral term used instead of the masculine term *Latino* that is meant to encompass all people of Latin American descent with gender identities across the gender spectrum, including those who are transgender or gender nonconforming.

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